REMARKS

In response to the Office Action dated January 4, 2005, Applicant respectfully requests reconsideration and withdrawal of the rejections of the claims.

Claims 1, 3, 4, 21, 23, 24, 41, 43, 44, 61, 63, and 64 were rejected under 35 U.S.C. §103, on the grounds that they were considered to be unpatentable over the Bellaton et al patent. Claim 1 recites a method for real-time transmission of content between a network server and a network client in which, among other features, each packet was designated as either a frame packet or a differential packet based upon the content of the packet. The claim further recites that differential packets are removed more frequently than frame packets to ensure that critical information is not lost when an acknowledgment is not received from the client. The Office Action acknowledges that the Bellaton et al patent does not teach the designation of packets as either one of a frame packet or a differential packet, based upon its content. To this end, the Office Action refers to Bellaton's teaching of two types of packets, one of which has a longer length than the other, and the prioritization of longer packets above shorter packets for retention in a transmission queue. The Office Action concludes that it would have been obvious to designate the longer packet as a frame packet, and the shorter packet as a differential packet.

It is respectfully submitted that the Bellaton patent does not suggest the claimed subject matter to a person of ordinary skill in the art. In particular, Bellaton's teaching of longer packets and shorter packets does not correspond to the claimed frame packets and differential packets. As recited in claim 1, the designation of a packet as a frame packet or a differential packet is "based upon the content of said packet." As described in the specification, a frame packet contains the information

necessary to reconstruct an entire frame of content, e.g., a video frame. In contrast, a differential packet contains only information that changes within a frame, from one packet to the next. For instance, in the transmission of streaming video, when a scene change occurs in the video, a frame packet will be transmitted, to reconstruct a new frame depicting that scene. Thereafter, when movements occur within the scene, differential packets may be transmitted, to depict those movements from frame to frame. It is respectfully submitted that the Bellaton patent's teaching of shorter frames and longer frames does not suggest such a concept. To clarify this distinguishing aspect of the invention, claim 1 has been amended to recite that a frame packet contains information for reconstructing an entire frame of content, and a differential packet contains changes to a frame. This distinguishing aspect is also brought out in claims 21, 41 and 61.

Claim 1 further recites that a timer is assigned to each packet, and the duration of the timers for frame packets is longer than for differential packets. A packet is retained for possible retransmission if its timer has not expired. Due to the difference in the duration of the timers for frame packets and differential packets, frame packets are retained for a longer period of time. In other words, differential packets are removed more frequently than frame packets. This approach ensures that critical information is not lost when acknowledgments are not received from the client.

It is respectfully submitted that this claimed aspect of the invention is likewise not suggested by the Bellaton patent. That patent discloses a technique wherein, when a new packet is received to be placed in the transmission queue, a determination is made whether the new packet relates to the retransmission of an

earlier packet that is already in the queue. If so, one of the two packets is dropped. The decision to be made, therefore, is which packet to drop. One of the criterion that is used in making this decision is the relative lengths of the packets. The Bellaton patent discloses a preference for retaining the longer of the two packets. Thus, if the longer packet is already in the queue, the new packet is dropped. Conversely, if the new packet is longer than the earlier one, the new packet replaces the earlier one in the queue.

It is respectfully submitted that this disclosure does not have any relationship to the claimed subject matter of assigning a timer to each packet to determine the length of time that the packet is retained for possible retransmission, and setting the duration of the timer in accordance with whether the packet is a frame packet or a differential packet. The above-noted teaching of the Bellaton patent is merely concerned with the elimination of redundant packets in the queue. It has nothing to do with the length of time that a packet is retained for possible retransmission.

Accordingly, for the foregoing reasons, it is respectfully submitted that the subject matter of claim 1 is not suggested by the Bellaton patent. For similar reasons, claims 21, 41 and 61, as well as their dependent claims, are likewise patentably distinct from this reference.

Another distinguishing feature of the invention is recited in claims 4, 24, 44 and 64. For example, claim 4 recites the additional step of placing the acknowledgment for differing ones of the packets into a coalesced acknowledgment. In rejecting this claim, the Office Action refers to the Bellaton patent at column 4, lines 1-40 and column 5, lines 1-15. The rejection states that the Bellaton patent discloses allowing a sequence of packets to be transmitted in a window, and then

concludes that this teaches "combining the acknowledgment into a single acknowledgment." It is respectfully submitted that the portions of the Bellaton patent identified in the rejection have nothing to do with the claimed subject matter. In particular, the *window* discussed in column 4 of the Bellaton patent relates to the transmission of *packets* from the source, e.g. a server. As described in the background portion of the patent, the basic protocol for TCP transmissions is illustrated in Figure 3A. A first packet P1 is sent, and the sender awaits an acknowledgment A1 before sending the second packet P2. The discussion at column 4 relates to the use of a sliding window approach to increase the data flow. This approach is illustrated in Figure 4. Rather than awaiting receipt of an acknowledgment for one packet before sending the next succeeding packet, in this approach a number of successive packets are sent before any acknowledgment is received. In the illustrated example, three successive packets are sent without awaiting an acknowledgment. Subsequently, as the acknowledgment for each transmitted packet is received, the next untransmitted packet in the sequence is sent. Thus, when acknowledgment A1 is received for the first packet P1, a new packet P4 is transmitted.

It is respectfully submitted that this teaching does not suggest the generation of a coalesced acknowledgment for different packets. As can be seen from the example of Figure 4, a separate acknowledgment is returned by the receiver for each individual packet as it is received. The patent does not disclose that acknowledgments for multiple received packets are coalesced to be sent back to the sender.

Accordingly, it is respectfully submitted that the Bellaton patent does not suggest the subject matter of claim 4 to a person of ordinary skill in the art. For similar reasons, claims 24, 44 and 64 are likewise not suggested.

Another distinguishing feature of the invention is recited in dependent claims 5-10, 25-30, 45-50 and 65-70, as well as new claims 81-90. These claims pertain to the determination of the congestion window that establishes the number of successive packets that can be transmitted without acknowledgment from the receiver. More particularly, the claims recite the manner in which the size of the window is dynamically varied in a "slow start" fashion to achieve optimum flow control without losing critical information.

These claims were rejected on the basis of the Bellaton patent, in view of the Lindsay patent. As noted above, the Bellaton patent discloses the use of a sliding window to increase data flow, for example with reference to Figure 4. The patent does not disclose, however, the manner in which the size of the window is determined. Rather, the disclosed example merely provides an illustrative window size of three packets. The Lindsay patent was cited for its disclosure relating to maximum segment size. However, this patent does not teach that the maximum segment size is employed as a factor in the dynamic calculation of the size of a transmission window. Accordingly, it is respectfully submitted that any possible combination of the teachings of the two references would not result in the subject matter of the claims identified above.
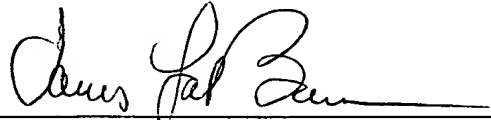
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For the foregoing reasons, it is respectfully submitted that all pending claims are patentably distinct from the prior art of record. Reconsideration and withdrawal of the rejections are respectfully requested.

Respectfully submitted,

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